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September 4, 2024

Federal Communications Commission
45 L Street, NE
Washington, D.C. 20554

Opposition to FCC Public Notice August 2024 – Proposal by NextNav

I have been using the Lower 900MHz band as an unlicensed Part 15 user for almost 35 years, it was the first band I gained experience on, and lead me to a life long fascination with radio, communications and signaling that I apply what I learned daily as a professional Software Engineer, Open Source Software volunteer contributor, licensed Amateur Radio Operator and Amateur Radio Volunteer Examiner, and Meshtastic Network Operator.

Specifically, **the lower 900MHz band has been undergoing a technological Renaissance in recent years**, and ultimately lead me to become an Amateur Radio Operator. This particular bit of spectrum lives at the intersection between:

1. Extremely low cost radios with on board micro-controllers with a smooth and low-cost supply chain.[1]
2. Shared and collaborative operation with Amateur Radio operations.
3. Extremely low power operation with comparatively long range.
4. An extremely innovative community using this part of the spectrum under Part 15 more and more every day.

Overall, it provides a much better learning path than unlicensed microwave operation for those who are a novice in the field. This allows me to provide others with a path for independent discovery and education similar to the one I took when I was younger.

Nobody needs to look very far to see these applications in practice, but I can enumerate a couple applications that I use for day to day operations within my community, under Part 15 usage:

1. **The WiFi Alliance's 802.11ah (HaLow) standard**
   (a) Which allows for network bridging across a variety of rural situations that microwave is not a good fit for, providing a way for rural communities to side-step having to using LTE and expensive proprietary platforms.
2. **Meshtastic (and similar Open Source projects)**
   (a) A peer-to-peer meshing radio application that provides nearly unlimited educational and research opportunities in some of of the most critical applications of Distributed Systems today:
      i. Peer to Peer message routing.
      ii. Backwards compatible message encapsulation for long lived deployment.
   (b) An extremely low cost barrier of entry, as low as \$10-\$15 to get started (if not cheaper).
   (c) A completely Open Source ecosystem.
   (d) Immediate entry points for Electrical Engineers, Radio Engineers and Software

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[1] Any attempt to relocate usage, will increase costs.

> Engineers to collaborate, learn from each other, and contribute towards a better community operated network.[2]

Because of the overlap with Licensed Amateur Radio operations, it becomes a quick way to get started using modern networking and distributed systems technologies on radio, at such a low cost, without having to be licensed at all. The educational path does lead users into becoming licensed, and learning and developing their skills more. There is no similar overlap in any other band. **This is the current on-ramp band for innovation.**

On the supply chain side of things, current Amateur Radio operators can use off-the-shelf hardware in this band for digital operation, with simple power adjustments to meet their needs, and coordinate and work with unlicensed operators collaboratively. This is not the case with unlicensed Part 15 Radio Operation, where Amateur Radio Operators need to also be Software Engineers and Electrical Engineers to change the frequency on hardware not designed for the task, or purchase much more expensive hardware, designed for the specific task. This shared region of overlap reduces waste and redundancy, and saves independent innovators money.

Without any doubt, the proposed change, would open the doors to:

1. Close the on-ramp to innovation happening in radio communications today, and close doors on educational opportunities.
2. Impact the entire Lower 900MHz Band Supply Chain, drastically increasing cost even for Amateur operators.
3. Drown out a large but unknown number of Part 15 users in this space.
4. Shut down the convergence of folks who are older and know a lot about radio, interacting with younger folks who know a lot about digital networking.

While I don't see NextNav petition as anything more than a spectrum grab at the cost of millions of everyday users of the band, and I would be incredibly surprised if their petition were approved by The Commission, I did feel the need to represent how this particular bit of spectrum has impacted my life, and how I see it impacting that of others.

Most people who are using the 900MHz band don't even know they are using it, and they certainly aren't going to be educated about using it within this short commentary period. As for why they will need to buy a replacement item for something that has worked for years and years, the phrasing "will work with unlicensed users," in my book, means that they will just be told they can no longer use their hardware, or it just won't work anymore and they will never know why.

I support Meshtastic Communities' Formal Opposition to the change, and I will probably also support the ARRLs upcoming commentary.

Sincerely,

Dylan Durst / KN6QOQ

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[2] One person having all 3 of these skill sets is already extremely rare, but those are the only individuals who would be able to innovate in this space, if this on-ramp is closed.